REMARKS

This Preliminary Amendment is submitted to improve the form of the English translation as filed. It is respectfully requested that this Preliminary Amendment be entered in the above-referenced application.

In accordance with the foregoing, claims 1-10 have been canceled and claims 11-28 have been added. Thus, claims 11-28 are pending and are under consideration.

A substitute specification is also being filed herewith. The substitute specification is accompanied by a marked-up copy of the original specification. No new matter has been added.

If there are any questions regarding these matters, such questions can be addressed by telephone to the undersigned. Otherwise, an early action on the merits is respectfully solicited.

If any further fees are required in connection with the filing of this Preliminary Amendment, please charge same to our Deposit Account No. 19-3935.
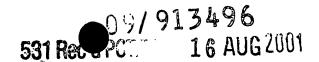
Respectfully submitted,

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MARKED UP COPY OF SUBSTITUTE SPECIFICATION

<u>TITLE OF THE INVENTION</u>

SYSTEM AND METHOD FOR INTERCONNECTION OF COMPONENTS

<u>BACKGROUND OF THE INVENTION</u>

<u>1. Field of the Invention</u>

[0001] The invention relates to a system and a method for interconnection of components, in particular of software components for at least one data processing application.

<u>2. Description of the Related Art</u>

[0002] Such a system is used, for example, in the field of software applications. In this case, there is frequently a desire to construct the individual applications from reusable components. This results in the necessity to interconnect the individual components with one another in various combinations. Components are in this case generally interconnected by [means of] special programming, which is referred to as glue code, but this may involve considerable effort.

<u>SUMMARY OF THE INVENTION</u>

[0003] The invention is based on the object of specifying a system and a method for interconnection of components, which allows interconnection of the components without special programming, for example in the form of what is referred to as glue code.

[0004] This object is achieved by a system and a method having [the features specified in claims 1 and 6, respectively. In this case, the] interfaces, for example input/output interfaces, [are] interconnected with one another either directly or with the interposition of the interconnection components. The effort for interconnection of the components is thus considerably reduced. Furthermore, it is possible to interconnect the components with one another in different configurations in a reusable manner. Special connection programming, for example in the form of glue code, is completely avoided, and all that is required is simple connection configuration. Overall, this leads to the interconnection intelligence being shifted from a container which surrounds the components into the components themselves. This makes it possible to design the container to be simpler since it no longer needs to have the capacity for script or programming.

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[0005] Shifting the interconnection intelligence from a container which surrounds the components to the components themselves can be ensured by the interconnection components containing information which is intended for interconnection of components.

[0006] One advantageous application option is for the components to be in the form of ActiveX components, in particular input and output components.

[0007] The object of an adapter function for the interconnection components can be taken into account by the interconnection component being provided for automatic active coupling and/or for adaptation of interfaces which do not match, or do not entirely match.

[0008] The complexity, for example, for memory space for storage of interconnection information and special container configurations can thus be considerably be reduced, since the components are intended for multiple interconnection with further components.

[0009] The invention will be described and explained in more detail in the following text with reference to the exemplary embodiments, which are illustrated in the figures, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 [shows] is a block diagram of an exemplary embodiment of a system for interconnection of components, with direct interconnection of the components, and

Figure 2 [shows] is a further exemplary embodiment of a system for interconnection of components, with interconnection of the components via an intermediate interconnection component.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0010] Figure 1 [shows] is a block diagram of a first exemplary embodiment of a system for interconnection of components 1, 2a..2n, with direct interconnection of the components 1, 2a..2n. The first component 1 is, for example, an input component, which has an input text field 4. Furthermore, the input component 1 contains interconnection information 6, which includes interconnection information for interconnection of an interface S1 for the input component 1 with further components 2a..2n. The further components 2a..2n are, for example, output components, which have an output text field 5 for outputting a text which can be entered in the input text field 4 of the first component. Furthermore, the further components 2a..2n have a respective interface S2a..S2n, each of which can be interconnected with the interface S1. In addition to the local interconnection information 6 in the first input component 1, central

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interconnection information 3 is furthermore provided in the exemplary embodiment illustrated in Figure 1 and, for example, contains centrally stored interconnection information for interconnection of the components 1, 2a..2n. The local interconnection information 6 and the central interconnection information 3 thus control the interconnection of the components 1, 2a..2n, via the signal flows which are indicated by arrows 8, 9 in Figure 1.

[0011]   The special feature of the system illustrated in Figure 1 for interconnection of software components 1, 2a..2n is that the components 1, 2a..2n are connected to one another without any complex programming, which is referred to as glue code, since the components are connected to one another via the interfaces S1, S2..S2n, which generally exist in any case in the software components 1, 2a..2n. One application example is, for example, the interconnection of what are referred to as ActiveX components in the Microsoft Windows environment. For example, ActiveX components can be interconnected, for example, from the Internet Explorer, come from Visual Basic, etc. The input component 1 uses as the input field, for example, a defined outgoing-COM interface S1. Where the input field 4 is amended, the edited text is interconnected via the interface S1, via the lines L1..Ln represented by dashed lines, to the interfaces 2a..2n, that is to say the interfaces of the output components 2a..2n. The interconnection intelligence required for the interconnection of the components 1, 2a..2n, illustrated in the exemplary embodiment in Figure 1, is either available locally as interconnection information 6 in the component 1, or is managed centrally at a central point as interconnection information 3. Shifting the interconnection intelligence from a container which surrounds the components, but which is not shown in any more detail in Figure 1 for reasons of clarity, to the components 1, 2a..2n makes it possible to design the container to be simpler. In consequence, the container no longer needs to have a script or programming capability, thus resulting in greater independence of the containers which are actually used.

[0012]   Figure 2 [shows] is a further exemplary embodiment of a system for interconnection of components 1, 2. In the exemplary embodiment illustrated in Figure 2, the components 1, 2 are not interconnected directly via the interfaces S1, S2 of the components 1, 2, but by the interposition of a special interconnection component 7. The interconnection component 7 has interfaces S7a, S7b, with the interface S1 of the input component being interconnected with the interface S7a of the interconnection component. In a similar way, the output interface S7b of the interconnection component 7 is interconnected with the input interface S2 of the output component 2.

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[0013] The use of the interconnection component 7, whose object is to interconnect the input component S1 and the output component 2 with one another, also makes it possible to provide an adapter functionality. This adapter functionality may, for example, comprise the interfaces of two components 1, 2 which do not match exactly being subjected to matching by the interconnection component 2. Mapping from a method base, for example, is thus possible, which, even in the case of fen parameters at, for example, standard values, carries out range conversion etc. In order to explain the terminology, reference should be made, for example, to the book "Activ X und OLE verstehen" [Understand Active X and OLE] Understand Active X and OLE, by David Chappell, Microsoft Press, Unterschleißheim.

[0014] In summary, the invention thus relates to a system and a method for interconnection of components 1, 2a..2n, in particular of software components for at least one data processing application. For interconnection of the components 1, 2a..2n without any special programming, for example in the form of what is referred to as glue code, it is proposed that the components 1, 2a..2n have at least one interface S1, S2a..S2n, which are intended for direct interconnection of the components 1, 2a..2n. In an alternative embodiment, the components 1, 2 have interfaces S1, S2, which are interconnected with one another via an interconnection component 7.

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